



April 21, 2009

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Dear Dr. Willke:

The Council on Safe Transportation of Hazardous Articles, Inc. (COSTHA) submitted a petition on September 23, 2008, requesting amendment of a rulemaking pursuant to 49 CFR, Part 106, Subpart B, §106.95. COSTHA requested amendments to 49 CFR, Part 173, Subparts E, §173.168 and G, §173.302a and §173.304a, as published in Docket No. RSPA-04-17664 (HM-224B) Final Rule effective October 1, 2007, with an extended mandatory compliance date of October 1, 2009. On October 29, 2008, you issued a denial for the petition based on your reasons that PHMSA "would closely monitor the availability of the required outer packaging and will consider an extension as we approach the October 1, 2009 compliance date."

COSTHA now provides additional information for your consideration and suggests that a timely response is now in order based on availability of the required outer packaging in time to meet a more practical implementation date, significant discrepancies in cost estimates used in the rulemaking, as well as overall safety issues regarding pressure resistance, or lack thereof, regarding the outer packaging required by the Final Rule

COSTHA is a not-for-profit organization representing manufacturers, shippers, distributors, carriers, freight forwarders, trainers, packaging manufacturers and others associated with the hazardous materials transportation industry. In addition to promoting regulatory compliance and safety in hazardous materials transportation, COSTHA assists its members and the public in evaluating the practicality and efficacy of laws, rules and regulations for the safe transportation and distribution of hazardous materials. Amongst our members, COSTHA proudly represents twelve (12) air carriers, representing the majority of carriers involved in the domestic and international carriage of passengers and cargo by aircraft. In order to meet the specific needs of these members we sponsor an Air Carriers Roundtable which serves as a forum for discussion of issues which relate specifically to the airline industry and their customers, many of whom are also COSTHA members.

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In PHMSA Docket No. RSPA-04-17664 (HM-224B) Final Rule effective October 1, 2007, amendments were made to Parts 173 and 175, 49 CFR. The rulemaking was promulgated in cooperation with the Federal Aviation Administration (FAA) with the stated purpose of increasing the level of safety associated with transportation of oxygen generators and cylinders of compressed oxygen aboard aircraft. In the preamble, PHMSA stated that they were amending the Hazardous Materials Regulations (HMR) to require cylinders of compressed oxygen and other oxidizing gases and packages of chemical oxygen generators to be placed in outer packaging that meets certain flame penetration and thermal resistance requirements when transported aboard an aircraft.

As the mandatory compliance date draws ever closer, two specific and compelling facts have become more evident. The first being, what COSTHA feels may be erroneous compilation of the costs associated with implementation of the requirements as published in the review of the Final Rule by the Office of Management and Budget as required for all significant regulatory action under section 3(f) of the Executive Order 12866. We feel that the total costs were significantly under-estimated due to the fact that no such packaging had previously been designed and tested and therefore no production costs could be accurately projected and the increased costs experienced by the airlines in handling and transporting the additional weight of the packaging and contents were not included in the equation. In addition to the fact that the proposed cases will be much more expensive than originally projected, the cost benefit analysis failed to take into account the fact that the weight of the cases will lead to an increased operating cost as a result of additional fuel burn.

COSTHA also has concerns that shippers of not only UN1072, Oxygen, compressed, but also oxidizing gases such as UN 3156, Compressed gas, oxidizing, n.o.s., UN3157, Liquefied gas, oxidizing, n.o.s., UN2451, Nitrogen trifluoride and UN1070, Nitrous oxide will also be affected by the rulemaking and will find their shipping costs dramatically increased when shipping these gasses by aircraft within the United States or when utilizing the services of U.S carriers anywhere in the world. This rulemaking will place U.S. shippers and carriers at a competitive disadvantage and drive commerce outside of the U.S. for these oxidizing gases. We are currently aware of one manufacturer of two of these gases that responded to this rulemaking by building new facilities in Europe, South America and Asia to allow them to ship their products under the ICAO provisions without concern for Section 2.9.1 and USG-18 which will include the provisions in Final Rule HM-224B. U.S. jobs are lost to other geographies when companies relocate operations.

COSTHA would like to point out that we have met with packaging manufacturers who claimed to have the ability to meet the standards for strength and thermal resistance as set out in the rulemaking and heard their proposed packaging solutions, none of which were actually in production. All known manufacturers were invited to participate.

They discussed prototype packaging that they alleged to have tested to the procedures as set forth in Appendix D to Part 178 – Thermal Resistance Testing and further stated that it had been successfully tested to meet the requirements of §173.304a(f)(3). The packagings were reported to have a range of tare-weight from 55 pounds each to 95 pounds each. A 115 cu ft, 3HT cylinder with the oxygen contents would add approximately 45 pounds to the package. At our initial meetings in June 2008, the estimated cost proposed by the manufacturer for each of these packagings was said to be approximately \$1500 to \$2000 each. Since that time the various packaging costs have been revised to now reflect a low range of \$850 each to a high range of \$2250 each. It appears that OMB used the FAA Regulatory Evaluation (RSPA-2004-17664-41) with an estimated cost of \$425 for small oxygen cylinder packagings, \$477 for large oxygen cylinder overpacks and \$595 for oxygen generator packagings for each of the proposed packaging, thus representing an erroneous conclusion on the total cost to the industry. In

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addition, the projected lifespan of these packagings was over-estimated since the proposed prototype packagings do not exhibit durability to substantiate the projections of 7 to 9 years. The study estimated that 30,000 of these cylinder packagings and 20,000 oxygen generator packagings would be needed to meet the mandate for the industry. We submit that these numbers are not accurate and have been significantly underestimated. The costs for recovery and redistribution also appear to be underestimated.

Although lighter weight composite materials have been tested, construction of the packaging has not been completed and an estimated cost for each packaging has not been determined and a delivery date was uncertain.

The variations in the system design for these emergency oxygen supplies aboard aircraft adds another dimension to the need for packaging manufacturers to develop a variety of outer packagings to meet the testing criteria in the Final Rule. For example, we understand that the Boeing 787 passenger emergency oxygen will be using an entirely new system to commercial aviation which could present numerous additional challenges in transporting items of replacement. It is said to be provided from a "pulse distributed gaseous system" involving small cylinders of gaseous oxygen in cylinders approximately the size of current chemical oxygen generators, something that appears totally new to at least the commercial aviation industry. It appears that the latest approved systems utilizing unknown increased numbers of smaller cylinders will require another design for the outer packaging since they will be shipped in case lots rather than as individual cylinders. The thermal resistance of these smaller cylinders will likely differ greatly from those with much larger capacities.

FAA Flight Standards has recently approved installation of systems aboard the A-380 that utilize a configuration of up to 15 cylinders. The A-380 actually utilizes two different sizes of cylinders aboard the aircraft. The flight crew oxygen system uses two (2) carbon composite fiber-wrapped aluminum cylinders with a capacity of 118 cu ft (3341 liters) and a charged weight of approximately 30 pounds each. The passenger system is equipped with anywhere from three (3) to fifteen (15) carbon composite fiber-wrapped aluminum cylinders with a capacity of 213 cu ft (6031 liters) and a charged weight of approximately 45 pounds each.

The 747-400 utilizes 13 each 3HT cylinders with a capacity of 115 cu ft each and a charged gross weight of approximately 45 pounds each in the passenger oxygen system. At the time that the rulemaking was introduced FAA had implied that cylinders might be getting smaller and therefore the super boxes could become smaller and lighter in mass. This is not the case. The larger 218 cu ft cylinders will need to be shipped and carried as spares and replacements transported by aircraft to destinations accessible only by air. The gross weight of these boxes will be even heavier than those described for use with the smaller cylinders. Based on these latest approvals, it appears that the various divisions within the FAA may to be inconsistent within their policies guiding flight standards approvals and hazardous materials transport regulations.

Another cost factor not considered in the OMB review is the increased handling and transporting expenses. In today's energy environment, airlines are struggling to meet the financial demands of fueling their aircraft. Fuel consumption, based on fleet averages compiled by a major air carrier member, can equate to an increase of 12,000 gallons of fuel per year for every additional one (1) pound per flight. Reports published by Bureau of Transportation Statistics show that the total cost per gallon of fuel last year ranged from \$2.04 a gallon in December to \$3.82 a gallon in July with a 12 month average of \$3.04 per gallon. This means that adding two cylinders, each in its own outer packaging would add approximately 200 to 280 pounds per flight with resultant increased fuel costs for this one carrier alone of over \$4,080,000 at an average of \$3.04 per gallon. And, the larger the cylinder the more costly the transportation costs become when transported in the larger packagings.

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Based on the presentations made by the packaging manufacturers and discussions with additional organizations who are attempting to fill the need for the packagings required under this rulemaking, it appears that additional time will be required to develop the lighter weight packagings that will withstand the rigors of air transport while still meeting the affordability needs of the user. The projected costs of the packagings currently under review would present astronomically greater costs than those set out in the HM-224B OMB analysis. With the questions surrounding durability of the packaging, replacement costs could also impact the cost projection.

The packaging for oxygen generators, while apparently not yet designed, will probably be very similar in cost to the cylinder packagings since the test criteria for thermal resistance are also similar.

Another cost apparently not included in the OMB projection is the increase in personal injury and compensation costs as well as employee lost time associated with handling these heavy packages in the close confines of an aircraft cargo hold. COSTHA feels that OMB should undertake a new cost-benefit analysis based on current cost projections and figures provided by those commercial enterprises that will, at some time in the future begin mass production of these packagings to meet the demand.

The second issue that COSTHA feels has significantly impacted the ability of the packaging suppliers to provide cost-effective solutions, is the excessive thermal resistance requirements of the Final Rule. One must question the requirement that the packaging provide thermal protection to ensure that the surface temperature of the cylinder not exceed 93° C (199°F) when the outer packaging is exposed to a temperature of 205°C (400°F) for a period of not less than three hours. As mentioned in our previous submissions, COSTHA believes the thermal resistance requirements are excessive. If the thermal limit was reduced to more realistically reflect the safety factors in an aluminum bodied aircraft, the cost of producing the packaging as well as the overall weight of the packaging could be significantly reduced.

In order to meet the thermal resistance requirements of the Final Rule for the specified test time, the closure of the outer packaging must be capable of preventing entry of the heated air into the box and to ensure that heat would be transferred by convection only thereby enabling the thermal insulation to perform its function. This means that the seal on the packaging closure would need to be air tight. COSTHA questions the ability of such a packaging to withstand the internal pressures that could occur in any instance where the inner cylinder with an operating pressure of 1850 psig were to experience failure of the valve mechanism or other breach of containment within the tightly sealed box. In the event of such a pressure increase within the box, persons releasing the latching mechanism could suffer serious injury if the lid were to open with violent force. We would also point out that the inability of the box to withstand an internal pressure approaching or equal to that within the cylinder could result in the package actually functioning as an explosive device aboard the aircraft if a catastrophic failure of the outer packaging should occur. Such an explosive failure could result in serious damage to the aircraft fuselage and/or controls. The effects could increase exponentially with the pressure differential within an aircraft at flight altitudes. If it became evident that a pressure release device was required, the cost of the box, as well as the production time and availability for implementation of the Final Rule would further increase.

For all the above reasons, COSTHA believes that the mandatory date for compliance of October 1, 2009 does not provide sufficient time for the packaging industry to meet the needs of the airline industry to provide a practical cost effective solution to the problem that we believe was overstated in the risk analysis which formed the basis for the rulemaking.

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As you advised in PHMSA's previous denial, "We will closely monitor the availability of the required outer packaging and will consider an extension as we approach the October 1, 2009 compliance date."

In keeping with your monitoring activities we ask that you consider this synopsis.

- New generation aircraft are using cylinders of a size and type not previously encountered in commercial aviation and therefore packaging development has not been adequately addressed or assessed.
- The packaging has not been evaluated in the marketplace in actual use to determine durability and to develop criteria and guidelines for taking them out of service.
- Even if the proposed packagings were currently in mass production, which does not appear to be the case, the variety and number of containers, the resources for distribution, and the time to implement operational changes and train employees would be inadequate to meet the current effective date.
- A 25 kg gross weight limitation on oxygen generators will limit the number of generators that can be placed in the package due to the weight of the outer packaging.
- Employee injury rates associated with the increased weight of the packaging were not included in the cost analysis.
- Additional fuel consumption as a result of the increased weight was not considered during the cost analysis.
- The economic impact on the U.S. economy as a result of businesses moving their operations outside the U.S. to utilize the more relaxed ICAO regulations was not factored into the cost benefit analysis.
- Aircraft cargo holds and bins have been equipped with enhanced fire detection and suppression systems that were not in place at the time when the NTSB recommendations were released that promulgated this rulemaking.

COSTHA believes that, in light of the factual information now available which supports the conclusion that the original cost-benefit analysis was significantly flawed and incomplete, the entire rulemaking should be re-evaluated. We feel that the time that will be required to complete the re-evaluation and compute the cost-benefit figures based on the latest projected costs, including the significant negative impact on operational expenses of U.S based shippers and carriers in the global marketplace, coupled with the lack of readily available packagings to meet the current testing criteria of the regulation, are all compelling reasons why the October 1, 2009 implementation date is impractical.

We therefore once again petition PHMSA to extend the effective mandatory compliance date to at least April 1, 2011, and suggest PHMSA permit the current use of non-rigid outer packagings also meeting the requirements of ATA Spec 300 standards be permitted in the interim. The additional time will not only provide time for the US DOT to conduct a more thorough cost-benefit analysis but will further allow packaging manufacturers to competitively introduce lightweight, durable, safe and affordable packaging with an anticipated long term safety benefit.



Sincerely,  
John V. Currie  
COSTHA Administrator